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PATENT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Attorney's Docket Number: 30-2004FWC1 (4690)
(New Patent Application Filed Under
37 CFR 1.62)

Inventors: RICHARD R. HERTZOG ET AL.

Serial No.: Unknown (FWC of Serial No. 297,333 Filed January
17, 1989)

Filed: Herewith

For: DECOMPOSITION OF CUMENE HYDROPEROXIDE

Petersburg, Virginia 23804
July 22, 1992

PRELIMINARY AMENDMENT

Commissioner of Patents & Trademarks
Washington, DC 20231

Dear Sir:

Prior to examination of the above-captioned
application, please enter the following amendments:

IN THE CLAIMS:

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Claim 1 (Amended). A process for decomposing a
cumene oxidation product mixture containing cumene
hydroperoxide (CHP) and dimethylphenyl carbinol (DMPC) to
produce phenol, acetone and alpha-methyl styrene (AMS) with
energy savings, enhanced safety of operation and reduced
by-product formation which comprises the steps:

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(a) mixing the cumene oxidation product in a stirred
or back-mixed reactor with an acid catalyst, with 10 to 100
percent acetone relative to the amount of acetone produced
during the decomposition reaction, and with [up to 4 weight
percent] additional amounts of water, the total amount of
added water not to exceed 4 weight percent relative to the
reaction mixture, at an average temperature between about 50°C
and about 90°C for a time sufficient to lower the average CHP
concentration of the reactor to between about 0.2 and about
3.0 weight percent, and wherein a portion of DMPC is converted
to dicumyl peroxide (DCP); then

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(b) reacting the reaction mixture from step (a) at a temperature between about 120°C and 150°C under plug-flow conditions for a time sufficient to decompose substantially all residual CHP and at least 90 percent of the DCP formed in step (a); then

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(c) submitting the reaction product from step (b) to adiabatic flash evaporation to recover a water-containing acetone-rich distillate and recycling said distillate to step (a) to provide said acetone and at least a portion of said additional amounts of water.

Please cancel claims 3, 4, 5 and 6.

DISCUSSION

With entry of the preliminary amendment offered above, claims remaining in the case are claim 1 (amended), and claims 2, 7 and 8.

Support for the amendments to claim 1 are provided in the specification page 6 line 18, page 7 line 12.

The claims as amended is directed to the preferred process for decomposing a cumene oxidation product mixture containing CHP and DMPC to produce phenol, acetone and AMS which includes the adiabatic flash evaporation step (c). The recycle of the water-containing acetone from step (c) results in enhanced yields of AMS with important energy savings, enhanced safety of operation and reduced formation of undesirable by-products. This is not thought to be taught or suggested by the references previously cited.

Favorable consideration and allowance of the claims as amended is respectfully requested.

Respectfully requested,
RICHARD R. HERTZOG ET AL.

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